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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,998	01/11/2002	Vitaliy S. Fain	FS-101	8102

27769 7590 11/14/2008

AKC PATENTS
215 GROVE ST.
NEWTON, MA 02466

EXAMINER	
SMITS, TALIVALDIS IVARS	
ART UNIT	PAPER NUMBER
2626	
MAIL DATE	DELIVERY MODE
11/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/043,998	FAIN ET AL.	
	Examiner	Art Unit	
	Talivaldis Ivars Smits	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/31 and 7/24/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5, 9-13, and 17-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 9-13, and 17-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 7, 2008 has been entered.

Specification

2. The title of the invention is not sufficiently descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Response to Arguments

3. Applicant's arguments of 3/31/2008 with respect to claims 1, 9, 17, 18, and 19 have been considered but are moot in view of the new ground(s) of rejection, using Hitoshi Honda et al. US Patent 6,879,956.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 19 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A signal or carrier wave is nonstatutory subject matter.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-4, 9-12 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Junqua (US 6,598,018) in view of Thelen *et al.* (US 6,526,380) and further in view of Honda *et al*. (US 6,879,956).

As to claim 1, Junqua teaches:

receiving a symbolic representation of a free continuous speech natural language utterance; parsing said symbolic representation of said free continuous speech natural language utterance into parsed information (a natural language interface where the input natural language is processed by a speech recognizer and supplied to a natural language parser, col. 1, lines 55-65 and col. 2, lines 12-18);

entering said parsed information into a computer instruction generator, wherein said computer instruction generator is adapted to receive inputs from a context sensitive subject area dictionary system, a context sensitive program module subdictionary

system, a context sensitive argument subdictionary system and a context value subdictionary system and wherein said context sensitive subject area dictionary system comprises data organized in a plurality of subject areas, said context sensitive program module subdictionary system comprises data organized in a plurality of program modules for each of said subject areas, said context sensitive argument subdictionary system comprise data organized in a plurality of arguments for each of said program modules and said context sensitive value subdictionary system comprises data organized in a plurality of values for reach of said arguments (entering parsed data to create computer instructions, where the computer instructions are based on the subject area (what to control, the audio or directions), what device (navigation system, radio, CD player, GPS, tape deck, or compact disk player), what command to carry out (get directions, change cd's, change volume), and how to carry out the command (directions to a point, cd to change to, what volume to change to), where each of the devices has its own context module set to control that device, having specific rules for specific functions of that device, col. 2, lines 24-43 and col. 5, lines 3-35);

determining, by accessing said context sensitive subject area dictionary system , a subject identifier, for a subject area of said parsed information (accessing the context of each of the systems to determine the subject area of the parsed information to be carried out, col. 2, lines 24-43);

determining, by accessing said context sensitive program module subdictionary system a module identifier for a program module of said subject area based upon the determined subject area identifier and the parsed information (based on the subject

found and the parsed information, determining which system to command, col. 2, lines 24-43);

determining by accessing said context sensitive argument subdictionary system, an argument identifier for an argument of said program module based upon the determined identifier and the parsed information (determining what action to carry out based on the context module of the selected system, col. 2, lines 24-43);

determining, by accessing said context sensitive value subdictionary system, a value identifier for a value of said argument based upon the determined argument identifier and the parsed information (determining how to carry out the action, to what extent, col. 2, lines 24-43); and

producing computer instructions based upon the subject area identifier such that the free continuous speech natural language utterance is processed by the computer (creating computer instructions once the natural language input is received, col. 2, lines 1-22).

Junqua does not teach using a hierarchically organized context-sensitive dictionary system. However, Thelen *et al*. teach hierarchically arranged speech recognition models, going from a more generic context to models with a more specific context (col. 8, line 54 – col. 9, line 1 with Figure 4, elements 420, 422, and 424 or elements 430, 432 and 424).

Therefore, it would have been obvious to one of ordinary skill at the time of invention to have Junqua's context-sensitive dictionary system be hierarchically-organized, so as to not to have to search the entire speech recognition vocabulary but

invoke the more specific models only if the more generic model gives unsatisfactory results, as Thelen *et al.* imply (col. 9, lines 12-17).

Neither Junqua nor Thelen teach that the received continuous speech natural language utterance comprises at least one of sound segments corresponding to words or phrases having the same meaning as other words or phrases corresponding to different sound segments, respectively, sound segments corresponding to words or phrases having the same spellings and different meanings, or sound segments corresponding to words or phrases having a meaning that is subject area dependent.

However, Honda *et al*. teach natural language input including sound segments having different spellings and different meanings (in connection with de tabeta (ate it with X) the system distinguishes “three homonyms 'hashi (bridge)’, ‘hashi (edge)’, and ‘hashi (chopsticks)’).

It would have been obvious to one of ordinary skill at the time of invention to add the models of Honda *et al*. to Junqua and Thelen’s speech recognizer to disambiguate input speech having these easily confused words.

As to claims 9, 17, 18 and 19, Junqua teaches an apparatus providing computer understanding by generating computer instructions from a free continuous speech natural language dialog (a natural language interface within an automobile system, where it would be inherent that the automobile system would contain a computer with instructions, since it used to control a navigation and audio system and it also inherently

have a memory since it contains the ability to be updated, col. 1, lines 5-10 and col. 2, lines 55-60 and 35-43), comprising:

a receiver receiving a symbolic representation of a free continuous speech natural language utterance; a parser parsing said symbolic representation of said free continuous speech natural language utterance into parsed information (a natural language interface where the input natural language is processed by a speech recognizer and supplied to a natural language parser, col. 1, lines 55-65 and col. 2, lines 12-18);

a context sensitive subject area system dictionary system comprising data organized in a plurality of subject areas, wherein said context sensitive a subject area dictionary system is used to determine a subject area identifier for a subject area of said pares information (determining from the context module the subject of the command to be carried out, be it audio or navigational, col. 2, lines 24-43);

a context sensitive program module subdictionary system comprising data organized in a plurality of program modules for each of said subject areas and wherein said context sensitive program module subdictionary system is used to determine a module identifier for a program module of said subject area based upon the determined subject area identifier and the parsed information (determining from the subject and the parsed information what system to carry out the command on, col. 2, lines 24-43);

a context sensitive argument subdictionary system comprising data organized in a plurality of arguments for each of said program modules and where said context sensitive argument subdictionary system is used to determine an argument identifier for

an argument of said program module based upon the determined module identifier and the parsed information (arguments are stored specific to each of the system that carry out those arguments, and based on the selected system and the parsed information a selected argument is carried out, col. 2, lines 24-43);

a context sensitive value subdictionary system comprising data organized in a plurality of values for each of said arguments and wherein said context sensitive argument subdictionary system is used to determine a value identifier for a value of said argument based upon the determined argument identifier and the parsed information (data organized specific the system within the context module for that system, including how to command that system where, to what extent to change the system (volume or where to get directions to) is based on the context module and the parsed information, col. 2, lines 23-44); and

computer instructions produced based upon the subject area identifier such that the free continuous speech natural language utterance is processed by the computer (creating computer instructions once the natural language input is received, col. 2, lines 1-22).

Junqua does not teach using a hierarchically organized context-sensitive dictionary system. However, Thelen *et al*. teach hierarchically arranged speech recognition models, going from a more generic context to models with a more specific context (col. 8, line 54 – col. 9, line 1 with Figure 4, elements 420, 422, and 424 or elements 430, 432, and 424).

Therefore, it would have been obvious to one of ordinary skill at the time of invention to have Junqua's context-sensitive dictionary system be hierarchically-organized, so as to not to have to search the entire speech recognition vocabulary but invoke the more specific models only if the more generic model gives unsatisfactory results, as Thelen *et al.* imply (col. 9, lines 12-17).

Neither Junqua nor Thelen teach that the received continuous speech natural language utterance comprises at least one of sound segments corresponding to words or phrases having the same meaning as other words or phrases corresponding to different sound segments, respectively, sound segments corresponding to words or phrases having the same spellings and different meanings, or sound segments corresponding to words or phrases having a meaning that is subject area dependent.

However, Honda *et al*. teach natural language input including sound segments having different spellings and different meanings (in connection with de tabeta (ate it with X) the system distinguishes "three homonyms 'hashi (bridge)', 'hashi (edge)', and 'hashi (chopsticks)').

It would have been obvious to one of ordinary skill at the time of invention to add the models of Honda *et al*. to Junqua and Thelen's speech recognizer to disambiguate input speech having these easily confused words.

As to claims 2 and 10, Junqua teaches said subject area comprise a plurality of sub-subject areas and the context sensitive system subject area dictionary system further comprise a context sensitive sub-subject area subdictionary for each of said sub-

subjects areas (the context modules have a plurality of sub-subject areas including an audio subject, and the sub-subjects being cd player, cassette player or the radio, col. 2, lines 24-43).

As to claims 3 and 11, Junqua teaches a value identifier further comprises querying the computer system for a missing value identifier (Fig. 3b element 106).

As to claims 4 and 12, Junqua teaches: wherein determining a subject area identifier further comprises querying a user of the computer system for a missing subject area identifier; determining a module identifier further comprises querying a user of the computer system for a missing module identifier; and determining a value identifier further comprises querying a user of the computer system for a missing value identifier (if there are any missing slots that are not filled, the user is queried to supply this information, Fig. 3b, elements 94, 101, 102, 104, 106 and 108).

8. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Junqua, Thelen *et al.* and Honda *et al.* as applied to claims 1 and 9 above, and further in view of Polcyn (6,246,989).

Junqua, Thelen *et al.* and Honda *et al.* do not teach wherein, determining a subject area identifier further comprises using a previously determined value for a missing subject area identifier, determining a module identifier further comprises using a

previously determined value for a missing module identifier, nor determining a value identifier further comprises using a previously determined value for a missing value identifier.

However, Polcyn teaches receiving a natural language command from a user, and understanding the command to carry out a particular action, by determining a subject, action to be taken and argument values. Furthermore, Polcyn teaches a system that is able to determine from previous values, command information that is not understood or is missing from the current natural language input (col. 7, lines 30-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the methods of Junqua, Thelen *et al.*, and Honda *et al.* with the teachings of Polcyn to allow a system to be updatable to contain new reference command information, as taught by Polcyn (col. 7, lines 38-40).

9. Claims 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Junqua, Thelen *et al.* and Honda *et al.* as applied to claims 1 and 9 above, and further in view of Ramaswamy *et al*. (6,622,119).

As to claims 20 and 23, Junqua, Thelen *et al.* and Honda *et al.* do not teach capturing a set of successfully understood free continuous speech natural language dialogs and associated program modules used to produce computer understanding, determining a frequency of occurrence value for proceeding to a next program module from a current program module, storing the frequency of occurrence values and

determining the appropriate program module selection based on choosing program modules having non-zero frequency values.

However, Ramaswamy *et al.* implies that all this was done because they teach "prompting a user for a response based on a most probable next command from the list of predicted commands" (col. 1, lines 53-55 and 60-62), which suggests such previous training to obtain the needed transition probabilities for predicting the next command in the dialog system.

That the frequency of occurrence values are stored in a matrix is not explicitly mentioned, but that is a notoriously well-known storage method, and a person with ordinary skill has good reason to pursue the known options within his or her technical grasp.

As to claims 21-22 and 24-25, Junqua, Thelen *et al.* and Honda *et al.* do not teach capturing program module or module group use frequency of occurrence information—for each step in the dialog, for proceeding to the next program module--during free continuous speech natural language dialogs.

However, Ramaswamy *et al.* suggests gathering frequency of occurrence data for commands and transitions to the next command as part of system training. So, it would have been obvious to one of ordinary skill at the time of invention to obtain this information so as to be able to modify the module structure for more efficient use of computer resources.

That the frequency of occurrence values and grouping information are stored in a matrix is not explicitly mentioned, but that is a notoriously well-known storage method for useful data, and a person with ordinary skill has good reason to pursue the known options within his or her technical grasp.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Talivaldis Ivars Smits whose telephone number is 571-272-7628. The examiner can normally be reached on 8:25 a.m. to 4:55 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

11/7/2008

/Talivaldis Ivars Smits/
Primary Examiner, Art Unit 2626